CLAIMS:

1. A method of imaging a patterned sample, the method comprising acquiring at least one image of the sample by illuminating the sample with substantially coherent light through an optical arrangement and collecting light reflected from the sample through said optical arrangement, wherein said optical arrangement has a predetermined numerical aperture NA and is located a predetermined distance from the sample, said predetermined distance being offset from a focal distance by an effective Talbot distance Z_r multiplied by a predetermined coefficient, the method thereby improving a smoothness of the image of the sample, the effective Talbot distance being determined by the NA of the said optical arrangement.

2. The method according to Claim 1, wherein said effective Talbot distance Z_r being determined as follows:

$$Z_r = 2 * \lambda / NA^2;$$

wherein the NA numerical apertur of the said optical arrangement and λ is a wavelength of said illuminating light.

3. The method according to Claim 1, wherein said at least one image is acquired with the optical arrangement spaced from the sample at said predetermined distance being equal to $+Z_r/4$ or $-Z_r/4$, wherein Z_r is the effective Talbot distance.

4. The method according to Claim 2, wherein said at least one image is acquired with the optical arrangement spaced from the sample at said predetermined distance being equal to $+Z_r/4$ or $-Z_r/4$, wherein Z_r is the effective Talbot distance.

5. The method according to Claim 1, comprising acquiring an additional image of the sample, wherein a difference between locations of the optical arrangement from the sample during said one and said additional image acquiring being equal to $Z_r/2$, wherein Z_r is the effective Talbot distance, and averaging the two images, the image resulting from said average being thereby characterized by said higher smoothness.

6. The method according to Claim 2, comprising acquiring an additional image of the sample, wherein a difference between locations of the optical arrangement from the sample during said one and said additional image acquiring being equal to $Z_r/2$, wherein Z_r is the effective Talbot distance, and averaging the two images, the image resulting from said average being thereby characterized by said higher smoothness.

7. The method according to Claim 5, wherein said additional image acquiring performs with optical arrangement located at focal distance from the sample.

8. The method according to Claim 6, wherein said additional image acquiring performs with optical arrangement located at focal distance from the sample.

9. The method according to Claim 5, further comprising varying the distance of said optical arrangement from the sample during image formation through distance of at least $Z_r/2$ to thereby obtain an averaged image of higher smoothness than that of each of said several images.

10. The method according to Claim 5, further comprising varying the distance of said optical arrangement from the sample during image formation through distance of at least Z_r, to thereby obtain an averaged image of higher smoothness than that of each of said several images.

11. The method according to Claim 6, further comprising varying the distance of said optical arrangement from the sample during image formation through distance of at least $Z_r/2$ to thereby obtain an averaged image of higher smoothness than that of each of said several images.

12. The method according to Claim 6, further comprising varying the distance of said optical arrangement from the sample during image formation through distance of at least Z_r, to thereby obtain an averaged image of higher smoothness than that of each of said several images.

13. The method according to Claim 1, further comprising varying a numeral aperture NA of said optical arrangement, and averaging the images to thereby obtain an averaged image of higher smoothness than that of each of said several images.

14. The method according to any one of preceding Claims, further comprising a step of varying said numeral aperture **NA** of said optical arrangement, and averaging the images to thereby obtain an averaged image of higher smoothness than that of each of said several images.

15. The method according to any one of preceding Claims, wherein said numerical aperture being formed by different segments are place symmetrically about the optical axis.

16. The method according to Claim 15, wherein said numerical aperture being of a star-like shape.

17. The method according to Claim 15, wherein said numerical aperture being of a rectangular like shape.